

What is claimed is:

1. A light chain of a botulinum toxin having a modified terminal end.
2. The light chain of claim 1 wherein the modified terminal end is an N-terminus.
3. The light chain of claim 1 wherein the modified terminal end is an N-terminus, and wherein the botulinum toxin is a botulinum toxin type A.
4. The light chain of claim 2 or 3 wherein at least one of the amino acids of the first 30 amino acids at the N-terminus of the light chain is substituted, mutated or deleted.
5. The light chain of claim 2 or 3 wherein at least one of the amino acids of the first 20 amino acids at the N-terminus of the light chain is substituted, mutated or deleted.
6. The light chain of claim 2 or 3 wherein at least one of the amino acids of the first 8 amino acids at the N-terminus of the light chain is substituted, mutated or deleted.
7. The light chain of claim 1 wherein the modified terminal end is an C-terminus.
8. The light chain of claim 1 wherein the modified terminal end is an C-terminus, and wherein the botulinum toxin is a botulinum toxin type A.
9. The light chain of claim 7 or 8 wherein at least one of the amino acids of the last 50 amino acids at the C-terminus of the light chain is substituted, mutated or deleted.

10. The light chain of claim 7 or 8 wherein at least one of the amino acids of the last 30 amino acids at the C-terminus of the light chain is substituted, mutated or deleted.

11. The light chain of claim 7 or 8 wherein at least one of the amino acids of the last 22 amino acids at the C-terminus of the light chain is substituted, mutated or deleted.

12. A botulinum toxin comprising a light chain of any of claims 1, 2, 3, or 7.

13. A botulinum toxin comprising a light chain of claim 4.

14. A botulinum toxin comprising a light chain of claim 5.

15. A botulinum toxin comprising a light chain of claim 6.

16. A botulinum toxin comprising a light chain of claim 9.

17. A botulinum toxin comprising a light chain of claim 10.

18. A botulinum toxin comprising a light chain of claim 11.

19. A method of decreasing an enzymatic activity and/or decreasing a biological persistence of a botulinum toxin, said method comprises modifying a terminal end of a light chain.

20. The method of claim 19 wherein the C-terminal end of the light chain is modified.

21. The method of claim 20 wherein at least one of the amino acids of the last 50 amino acids at the C-terminal end of the light chain is substituted, mutated or deleted.

22. The method of claim 20 wherein at least one of the amino acids of the last 30 amino acids at the C-terminal end of the light chain is substituted, mutated or deleted.

23. The method of claim 20 wherein at least one of the amino acids of the last 22 amino acids at the C-terminal end of the light chain is substituted, mutated or deleted.

24. The method of claim 20 wherein the C-terminal end of the light chain of a botulinum toxin type B, C1, D, E, F or G is replaced by a C-terminal end of the light chain of botulinum toxin type A.

25. The method of claim 19 wherein the N-terminal end of the light chain is modified.

26. The method of claim 19 wherein at least one of the amino acids of the first 30 amino acids at the N-terminal end of the light chain is substituted, mutated or deleted.

27. The method of claim 19 wherein at least one of the amino acids of the first 20 amino acids at the N-terminal end of the light chain is substituted, mutated or deleted.

28. The method of claim 19 wherein at least one of the amino acids of the first 8 amino acids at the N-terminal end of the light chain is substituted, mutated or deleted.

29. The method of claim 19 wherein the N-terminal end of the light chain of a botulinum toxin type B, C1, D, E, F or G is replaced by an N-terminal end of the light chain of botulinum toxin type A.

30. A light chain of a botulinum toxin type B, C1, D, E, F or G comprising about the last 50 amino acids at a C-terminus of the light chain of botulinum toxin type A.

31. The light chain of claim 30 wherein the light chain comprises about the last 30 amino acids at the C-terminus of the light chain of botulinum toxin type A.

32. The light chain of claim 30 wherein the light chain comprises about the last 22 amino acids at the C-terminus of the light chain of botulinum toxin type A.

33. The light chain of claim 30 wherein the inclusion of about 50 amino acids from the C-terminus of the light chain of type A replaces one or more amino acids at the C-terminus of the light chain of botulinum toxin type B, C1, D, E, F or G.

34. A light chain of a botulinum toxin B, C1, D, E, F or G comprising about the first 30 amino acids at the N-terminus of the light chain of botulinum toxin type A.

35. The light chain of claim 34 wherein the light chain comprises about the first 20 amino acids at the N-terminus of the light chain of botulinum toxin type A.

36. The light chain of claim 34 wherein the light chain comprises about the first 8 amino acids at the N-terminus of the light chain of botulinum toxin type A.

37. The light chain of claim 34 wherein the inclusion of the 30 amino acids from the N-terminus of the light chain of type A replaces one or more amino acids at the N-terminus of the light chain of botulinum toxin type B, C1, D, E, F or G.

38. A light chain of a botulinum toxin B, C1, D, E, F or G comprising about the first 30 amino acids from the N-terminus of the light chain of botulinum toxin type A and about the last 50 amino acids from the C-terminus of the light chain of botulinum toxin type A.

39. The light chain of claim 38 wherein the light chain comprises about the first 20 amino acids from the N-terminus of the light chain of botulinum toxin type A and about the last 30 amino acids from the C-terminus of the light chain of botulinum toxin type A.

40. The light chain of claim 38 wherein the light chain comprises about the first 4 to 8 amino acids from the N-terminus of the light chain of botulinum toxin type A and about the last 7 to 22 amino acids from the C-terminus of the light chain of botulinum toxin type A.

41. The light chain of claim 38 wherein the inclusion of about the 30 amino acids from the N-terminus and about the 50 amino acids from the C-terminus of the light chain of type A replaces one or more amino acids at the N- and C-termini, respectively, of the light chain of botulinum toxin type B, C1, D, E, F or G.

42. The light chain of claim 39 wherein the inclusion of about the 20 amino acids from the N-terminus and about the 30 amino acids from the C-terminus of the light chain of type A replaces one or more amino acids at the N- and C-termini, respectively, of the light chain of botulinum toxin type B, C1, D, E, F or G.

43. The light chain of claim 39 wherein the inclusion of about the 4 to 8 amino acids from the N-terminus and about the 7 to 22 amino acids from the C-

terminus of the light chain of type A replaces one or more amino acids at the N- and C-termini, respectively, of the light chain of botulinum toxin type B, C1, D, E, F or G.

44. A botulinum toxin comprising the light chain of any of claims 30-43.